

PERFORMANCE WORK STATEMENT
AIRCRAFT STRUCTURES FOR INSPECTORS

28451

Section 1 - General

1.1 Scope of Work

The contractor shall develop and deliver a course in Aircraft Structures. Each class will consist of 12 students, as ordered by the Government. Students attending this course will be FAA Certification Engineers and Manufacturing Inspectors. Course length shall provide approximately 64 hours of instruction and will accomplish the training outcomes listed in Section 5, Specific Tasks. IN ADDITION:

- 1.1.1 Class content or delivery method shall not elicit high levels of emotional response.
- 1.1.2 Class content or delivery method shall not be associated with religious, quasi-religious, or new age belief systems.
- 1.1.3 Classes shall not include materials that could be viewed as attempts to change or influence an individual's personal values or lifestyle outside the workplace.

1.2 Qualifications of Personnel

1.2.1 Instructors

A. Classroom instructors must have a minimum of three (3) years documented experience related to maintenance or design involving U.S. type certificated aircraft in the area of Aircraft Structures.

1.3 Quality Assurance

1.3.1 Class Monitoring

An FAA technical representative shall be permitted to monitor classroom and laboratory sessions to assure that all training outcomes and contract specifications are met.

1.3.2 Student Evaluation

At the conclusion of each course, the FAA will furnish an end-of-course student evaluation form for completion by each student. The original of all completed forms shall be forwarded to the Contracting Officer's Representative (COR).

Section 2 - Definitions

Contracting Officer (CO): The person authorized to act on behalf of the Government to negotiate and award contracts and modifications thereto, and to administer contracts through completion or termination. Except for certain limited authority delegated by the Contracting Officer to a technical representative, the Contracting Officer is the only individual with the authority to direct the work of the Contractor.

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Contracting Officer's Representative (COR): The authorized Government representative(s) acting within the limits of their delegated authority for management of specific projects or functional activities.

DOT: United States Department of Transportation

FAA: Federal Aviation Administration, a component agency of the U.S. Department of Transportation

TC: Training Coordinator

Quality Assurance: Actions taken by the contractor to ensure compliance with the provisions of the Performance Work Statement.

Quality Control: A system development by the contractor to ensure compliance with the provisions of the Performance Work Statement.

Training Materials: Course materials, equipment and supplies used by the Contractor in the development, presentation, practice and evaluation of training.

Training Outcomes: The total combination of skills and knowledge that the learner must acquire to perform a job assignment.

Section 3 - Government-Furnished Property and Services

N/A

Section 4 - Contractor-Furnished Property and Facilities

4.1 Training Facilities. The following elements shall apply to contractor-furnished facilities:

a. The classroom must be large enough to accommodate all of the students with not less than 30 gross square feet per student.

b. Sufficient presentation boards for effective teaching shall be provided.

c. The classroom shall be well lighted. There shall be not less than 30foot candles of illumination at the student's desk or table.

d. Students shall be seated at tables or workstations adequate for writing or taking notes while using an open course reference book. Chairs shall be ergonomically appropriate for 8-hour occupancy.

e. The classroom shall be cleaned not less than two times each week of instruction.

f. Sanitary restroom facilities shall be available within convenient distance of the classroom.

g. The classroom facilities shall be adequately ventilated; heated in winter and cooled in summer. Temperature limits shall not exceed 70 to 76 degrees.

h. Ambient noise shall be below the distraction point. At any position in the classroom, normal instructor voice levels should exceed the

ambient noise level by 20 decibels.

i. Contractor shall comply with safety standards specified by the National Electrical Code, the National Fire Code, and the United States of America Standards Institute in conducting contract training.

j. Local environmental distraction adversely affecting student learning shall be eliminated.

k. The contractor must have equipment to perform the following testing modes: bending, tension, compression, cyclic, and torsion.

l. Contractor must have the ability to demonstrate strain gage operation.

m. Contractor must have a computer with software capable of demonstrating finite element analysis with graphics enhancement.

Section 5 - Specific Tasks

5.1 Conduct of Training

5.1.1 Daily Sessions

Training shall be conducted on a one-shift basis, eight hours per day. Training will begin Tuesday and end on Thursday of the following week. Training is to be continuous during this period, except no classes shall be conducted on Saturday or Sunday. Training shall not be scheduled over a period containing a Federal Holiday. Training shall not begin the day following a Federal Holiday. Local or state holidays shall interrupt the training period. Normal hours of training should not begin later than 9:00 a.m. Should a requirement exist to change either the hours or days of training indicated, the change must be coordinated in advance with the FAA COR.

5.1.2 Student Grade and Reports

Upon completion of the training the contractor shall forward to the COR a list of the students attending with a statement stating they have satisfactory completed the training.

5.1.3 FAA personnel are expected to perform at a level compatible with the highest standards of the specialty. Accordingly, each course of instruction will be offered at a level consistent with this philosophy.

5.2 Training Outcomes:

Graduates of this course, with reference to course materials, must be able to accomplish the following:

- 5.2.1 Describe design airspeeds (V_a , V_c , V_d) and explain how they are used in aircraft design.
- 5.2.2 Define stress and strain and describe their relationship to Modulus of Elasticity.
- 5.2.3 Define tensile stress, compressive stress, shear stress, and column buckling.
- 5.2.4 Identify the stresses resulting from bending, torsion, and cyclic loading.
- 5.2.5 Explain the concept of biaxial stress.
- 5.2.6 Given the applied stress, and with additional reference to

- Metallic Materials Properties Development and Standardization (MMPDS), identify appropriate aircraft structural metals for the application.
- 5.2.7 Given the applied stress, and with additional reference to Composites Materials Handbook, CMH-17, identify appropriate structural composite material for the application.
 - 5.2.8 Explain the uses of strain gages etc. in the determination of stress.
 - 5.2.9 Describe the advantages and disadvantages of common aircraft structural materials with respect to physical and mechanical properties.
 - 5.2.10 Relate the different heat treatments of metals and curing conditions for non-metal composite material to the specific material properties.
 - 5.2.11 List the applications for plastics, composite material, wood and fabric in aircraft construction.
 - 5.2.12 Given the numerical identification of specific fasteners, and with reference to Metallic Materials Properties Development and Standardization (MMPDS), determine their mechanical properties.
 - 5.2.13 Describe the advantages and disadvantages of the welding and bonding processes used for aircraft construction.
 - 5.2.14 Evaluate a given failed structural element and, with reference to Metallic Materials Properties Development and Standardization (MMPDS), design a repair to restore structural integrity, taking into account fatigue and riveted joint strength.
 - 5.2.15 Given a structural test plan, determine if the test is adequate to establish compliance with the strength requirements, and that the test specimen has been properly instrumented.
- 5.3 Additional Requirements
- 5.3.1 The contractor shall demonstrate to each class a structural strength determination using finite element analysis.
 - 5.3.2 The contractor shall demonstrate to each class metal failure from the effects of nitrogen or hydrogen.
 - 5.3.3 Class laboratory exercises to determine material strengths shall be included in each class.
- 5.4 Deliverables
- 5.4.1 The Contractor shall furnish each student a course reference book.
- 5.5 Develop Welcome Package information
- Welcome Package information is intended to aid students in making travel, lodging, and dining arrangements for class attendance. Welcome Package information will include site-specific information for each site included in the class schedule. At a minimum this information shall include the following:
- Site address and map/directions to the site

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- Local Point of Contact and phone number
 - Commercially available lodging near the training site and rates
 - Transportation availability between lodging locations, airport, and training site
- Dining options in the area near lodging locations and training site

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